

## FDA Approves New “Super Statin” Cholesterol Drug From Regeneron, Sanofi

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The first of a powerful new class of cholesterol-lowering medicines won approval from U.S. regulators Friday—a highly anticipated medical advance that nevertheless promises to escalate the growing clamor over drug costs. The drug, called Praluent and developed by [Regeneron Pharmaceuticals](#) Inc. and [Sanofi SA](#), provides a new and in some cases desperately needed option for several million high-risk heart patients who can't get their cholesterol to desirable levels with the blockbuster group of medicines known as statins. But the companies are pricing the drug at \$14,600 a year, an especially high amount for a medicine aimed at a common condition like heart disease. By contrast, statins, which are available in generic versions and remain the mainstay drug option for cholesterol reduction, can be purchased for just a few dollars a month. The approval by the U.S. Food and Drug Administration comes amid a crescendo of concern over high drug prices. The \$1,000-a-pill price for [Gilead Sciences](#) Inc.'s hepatitis C drug Sovaldi triggered outrage from pharmacy-benefit managers and government officials worried about the impact on health programs such as Medicaid. Just this week, more than 100 oncologists joined a growing chorus of doctors lambasting the drug industry for cancer drug prices that can reach \$150,000 a year for individual patients.

Some experts say the new cholesterol agents could dwarf those worries. “This could become the most expensive medication that we use,” said Troyen Brennan, executive vice president and chief medical officer at [CVS Health](#) Corp. [CVS 0.27 %](#), the pharmacy-benefits manager and drugstore chain. Unlike drugs for cancer or multiple sclerosis, which can have six-figure annual price tags but are taken by relatively few people, these new drugs could go to several million people. Adding the price, plus the expectation that patients could stay on them for 20 to 30 years, Dr. Brennan said, creates a multiplier effect that could lead to a potential \$50 billion to \$100 billion-a-year national tab. Other projections are more tempered. Credit Suisse, for instance, in a recent report that assumed a \$10,000 price for the drugs, predicted total peak annual sales of Praluent and two expected rivals to eventually reach about \$10 billion. Regeneron and Sanofi defended Praluent's price. An antibody that patients inject themselves, it will cost substantially less than similarly administered drugs such as Humira and Enbrel for rheumatoid arthritis and other autoimmune diseases, which are prescribed for thousands of patients and which they said list for more than \$38,000 a year. The toll in the U.S. for cardiovascular disease amounts to more than \$300 billion a year, according to estimates, while treating an individual heart attack can range from \$60,000 to \$120,000, said Leonard Schleifer, Regeneron's chief executive officer. Expectations—not yet proven—are that the marked cholesterol reductions seen with Praluent will translate into fewer deaths and costly events. The company believes “we've come up with a price that provides value to the health-care system,” Dr. Schleifer said.

After discounts drug makers routinely offer insurers and government payers, the actual price will be lower than the list price. And Praluent likely will soon have competition: A similar drug, Repatha, from [Amgen](#) Inc., [AMGN -3.36 %](#) was approved in Europe early this week, and the FDA's action date for a decision in the U.S. is Aug. 27. [Pfizer](#) Inc. [PFE -1.50 %](#) has a candidate that could reach the market by 2017. “It's not going to be the big shock to the system that other people are predicting,” said Elias Zerhouni, Sanofi's research chief.

According to the FDA-approved label, Praluent is indicated for patients with a hereditary condition called familial hypercholesterolemia or with established coronary artery disease and who need additional cholesterol lowering beyond aggressive statin treatment to reduce their heart risk. Regeneron says it believes between 8 million and 10 million patients in the U.S. meet those criteria. Some analysts felt the label was narrower than expected. The new drugs represent the most significant advance against cholesterol since the introduction of statins 28 years ago. Statins, such as the blockbuster Lipitor, have transformed the field of cardiology and contributed to sharp declines in the past two decades in heart attacks and deaths from cardiovascular disease.

Statins are taken by some 40 million Americans, and in addition to a healthy diet and exercise, remain the mainstay strategy to lower LDL cholesterol, the chief culprit in the accumulation of deposits in the coronary arteries that lead to heart attacks. But a significant portion of patients are unable to control their cholesterol with statins, either because they have genetically high levels of LDL, or because they suffer side effects such as muscle pain that make them statin intolerant, limiting or precluding their ability to take the medicines. Praluent works by blocking a protein called PCSK9, which interferes with the body's ability to clear artery-damaging cholesterol from the blood.

A series of genetic discoveries a decade ago laid the foundation for Praluent and its rivals. After French researchers linked mutations in the PCSK9 gene to high LDL levels and early heart disease in French families, researchers Helen Hobbs and Jonathan Cohen at University of Texas Southwestern Medical Center, Dallas, wondered if other mutations might have the opposite effect. They quickly found three candidates in the DNA of participants in the medical center's 3,500-patient Dallas Heart Study who had low LDL. Further research in a larger study revealed the mutations were associated not only with lower LDL levels but with sharply reduced risk of heart attacks and other serious problems. "It told us we definitely had something important," Dr. Hobbs said. Then the researchers found a patient who had inherited two copies of protective PCSK9 genes, essentially knocking out production of the protein. The 32-year-old aerobics instructor's LDL was an almost unheard of level of 14 mg/dl. She had two healthy children and no obvious health problems. The combination of low heart risk and apparent safety of very low LDL was part of the package that persuaded companies to develop antibodies to target PCSK9.

In clinical trials, Praluent has been shown to reduce LDL cholesterol by 50% to 70% beyond that achieved with statins alone. But whether that safely results in a commensurate reduction in heart attacks and other consequences of heart disease won't be known until results of a major long-term study are reported—expected by 2017. Many observers expect adoption of the drug to be modest at least until those data are known. Doctors say between 5% and 20% of patients complain of muscle pain from statins that leaves them statin-intolerant. Studies also show the problem can often be overcome by changing statins or other strategies. Insurers and pharmacy-benefits managers are already planning to make sure heart patients exhaust their efforts to control cholesterol with exercise, diet and statin drugs before authorizing use of the new drugs. "What makes this important is that this is such a huge market that even a small fraction of the market is a large number," said J. Sanford Schwartz, a professor of economics and of medicine at University of Pennsylvania's Wharton School.

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